

81269



June 14, 1989

DEN67902.T1

Mr. Glenn M. Curtis
U. S. Environmental Protection Agency, Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Mr. Curtis:

Subject: Lead Concentrations in Chat Pile located in Zone 7 that is owned by the Joplin Road District; Cherokee County Site, Galena Subsite

CH2M HILL has used the x-ray fluorescence (XRF) to make field determinations of data on lead and zinc concentrations for the Joplin Road District chat pile in Zone 7 (Hell's Half Acre) of the Galena Subsite. Table 1 presents the results of the XRF measurements on bulk samples from this pile. Mr. Robert Cooper (Superintendent, Joplin Road District) and I made these XRF measurements the afternoon of June 1, 1989. The approximate locations of the measurements are shown in the sketch attached as Figure 1.

XRF measurements indicate an average lead concentration of 1,040 milligrams per kilogram (mg/kg equals parts per million) on a bulk basis. This average was calculated from 11 measurements at random spots around the chat pile. The pile had been recently worked by the road crews and locations from the interior of the pile were available to be measured. Locations at the pile interior were not available when earlier measurements were made. The observed lead concentrations ranged from approximately 70 to 1,970 mg/kg. Because XRF measurements have a tendency to measure more of the fine-grained material than the coarse-grained material, these numbers may exhibit some variance from values determined either through normal assay methods or the CLP total metals method. Based on the size distribution of the materials sampled, the XRF values should be to be within 10 percent (plus or minus) of values determined through the use of standard assay techniques. A composite sample was prepared from the samples from the 11 locations. The concentration of lead in this composite sample was measured by the XRF three times. The individual readings are reported in Table 1. The average of these three readings is 1,080 mg/kg which is approximately the same value as the average for the 11 spot samples. The close agreement between the averages for the individual sample and the composite sample adds to

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the confidence of the reported results. Zinc concentrations are also reported for each of the sample locations. The concentrations are reported on a bulk basis without screening the determine size fractions. As such these analyses do not have information on the lead content of the finer fractions of the samples (e.g. less than 16 mesh) that is being used in the OUFS supplement as the upper size for the soils at the subsite. If the trends from the previous measurements are applicable to this chat pile, the lead concentrations in the less than 16 mesh fraction will exceed those reported for the bulk samples.

As the general intent of the sampling was to support the field pilot testing program, chain-of-custody procedures were followed for only the composite sample. This sample is available for conventional assay or CLP analysis for the metals content if confirming data are foreseen as necessary. If you need data from the individual sample locations with chain-of-custody control, additional samples following established chain-of-custody procedures would need to be collected.

Should you need any further information regarding these measurements please call.

Sincerely,


for Richard K. Glanzman
Senior Geochemist

Attachments:

Table 1

Figure 1

cc:

Project Team

Project Files

Phil Burke/RM/DEN

Table 1
CORNWALL/JOPLIN ROAD DISTRICT CHAT PILE
Zone 7, Galena, Cherokee County, Kansas

FIELD ANALYSES

<u>INDEX NUMBERS</u>		<u>CALCULATED CONCENTRATIONS(mg/kg)</u>		
<u>Sta.</u>	<u>Lead</u>	<u>Zinc</u>	<u>Lead</u>	<u>Zinc</u>
1	0.90	2.13	1,080	13,300
2	1.11	2.66	1,890	17,100
3	0.71	0.91	340	4,570
4	.99	2.07	1,430.	12,900
5	0.78	0.4	610.	1,350
6	0.95	0.52	1,270.	1,780
7	1.13	0.44	1,970	1,210
8	0.92	0.50	1,150.	1,640
9	0.64	0.37	70.	710.
10	0.86	1.45	920.	8,430
11	0.771	0.70	570.	1,200
AVE.	0.89	1.20	1,040	6,640
Composite Sample				
	0.80	1.24	690.	6,930
	0.96	2.05	1,310.	12,700
	0.94	0.76	1,230.	3,500
AVERAGES			1,080	7,710

STANDARDS ANALYSES

<u>INDEX NUMBERS</u>			<u>XRF CONCENTRATIONS</u>		<u>LAB DETERMINATIONS</u> (assay)	
<u>Std. No.</u>					<u>Lead</u>	<u>Zinc</u>
1	1.28	1.37	2,550	7,860	2,700	8,350
1	1.27	1.37	2,510	7,860	2,700	8,350
1	1.33	1.49	2,750	8,720	2,700	8,350
2	.93	.30	1,190	210	1,350	340
2	.96	.39	1,310	850	1,350	340
3	.87	.42	960	1,060	1,050	850
4	.77	.79	570	3,710	610	4,000
5	.77	1.16	570	6,360	770	6,060
6	1.32	1.49	2,710	8,720	2,200	7,740
7	.74	1.06	460	5,640	450	6,600

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Table 1
(continued)

Statistics- Least Square Fit Analysis

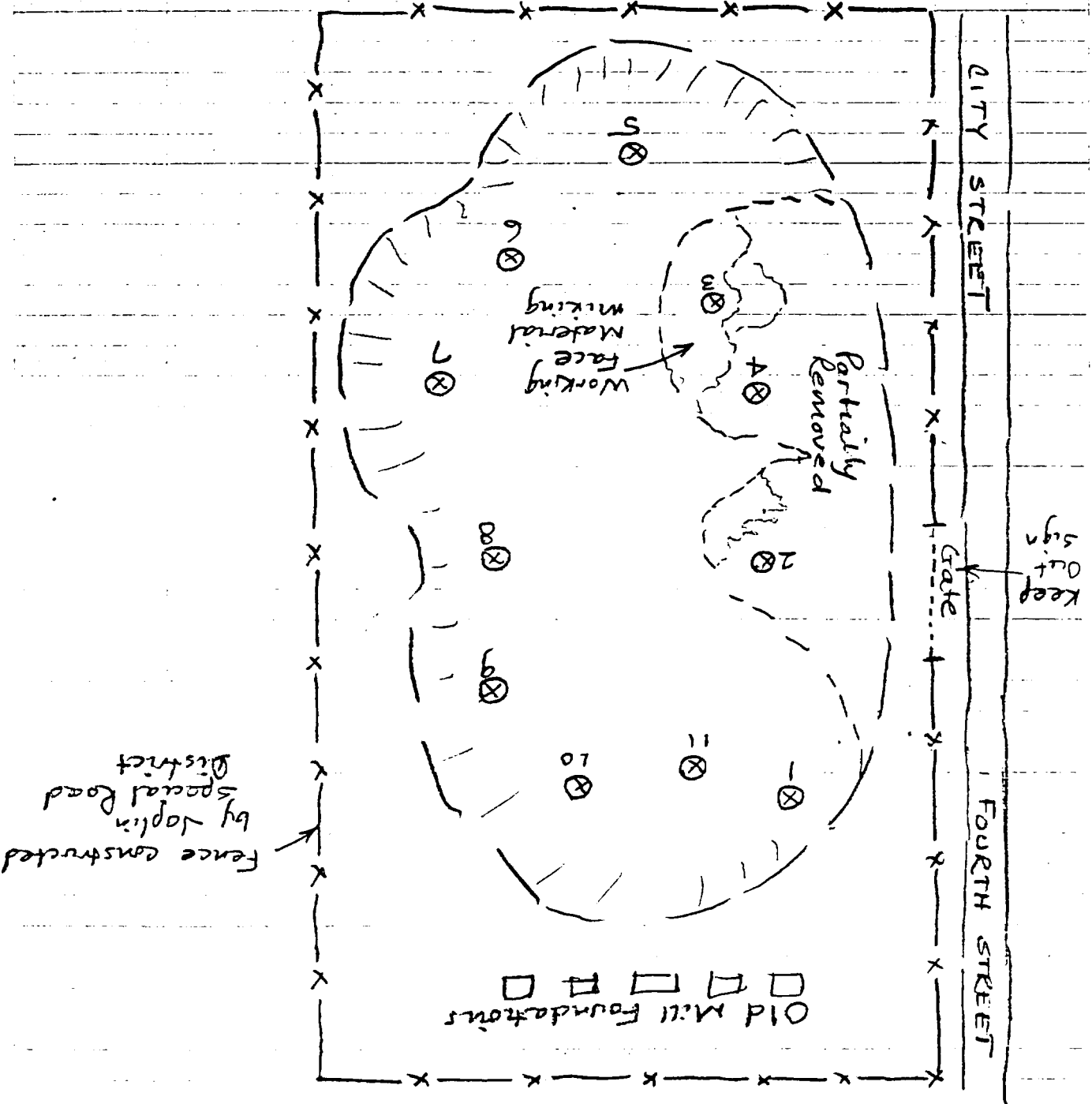
<u>Parameter</u>	<u>Lead</u>	<u>Zinc</u>
Correlation Coefficient 0.98	0.99	
Intercept (a)	0.6226	1,937.5
Slope (b)	0.2576	7149.9



SUBJECT - Map showing sample locations - Zone 7 Joplin Special Road District Chat Pile - Galena Subsite

PROJECT NO. DEN 67902 FT
SHEET - 1 OF 1

D.K. Glanzman 9/15/87



Schematic
NOT TO SCALE
X Sample Location and Number

Composite sample includes these 11 sites plus
3 more across the top

Photos

- 1 chat pile from across: 4th St. - looking N
3. Division pile on the working face looking from the western working area - notice naked character of chat
- 2 and 4 Eastern working face that Soplin RD has developed material in pile is mixture of chat from the face and from the top -
- 5 still eastern face - west side piles are mixtures of face and both top and side chat.
- 6, 7, 8 closer views of ^{eastern} working face illustrate the stratified nature of the material
- 9, still eastern face showing the last lift from the mill
- 10, 11 looking along the eastern face
- 12 blurred chunk of face material weathering into loose chat
- 13 east side of the eastern face
- 14 on top of the pile where Soplin RD has bulldozed the chat off to form a flat surface
- 15 Eastern side of the chat pile
- 16 Northeast " " " "
- 17, 18 Northwest " " " "
- 19, 20 western " " " " showing the old mill foundation
- 21, 22, 23 panorama of Hell's Half Acre from the top of the chat pile
- 24 western working face - notice the ^{white} zinc-rich precipitate cementing selective chat layers

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